

Response to Comments from the Colorado Department of Health

Submitted November 13, 1982 *92* *ur*

CDH #1 As we stated in our original comments to the draft version of this work plan, unless and until a revised SOP GT.08 and an HPGe SOP are both approved, the Division is unwilling to approve this work plan. We have yet to see a revised SOP GT.08 and we have only seen a draft HPGe SOP which was very deficient and received heavy comments (for instance, the draft SOP had no provisions for laboratory HPGe applications, nor for placement of the HPGe detector over holes in pavement). Since DOE and EG&G have known about this condition of approval since early August and have not taken the necessary steps to satisfy it, the Division will withhold approval of the work plan until the condition is satisfied. Any scheduling and milestone problems arising as a result of this issue will be DOE's responsibility.

RESPONSE CDH #1: We have submitted several revised SOP's to CDH and EPA. We have committed to the development of many more. See Response to EPA Comment EPA #12 Although SOP GT.08 has been approved and in use since August 1, 1991 (letter EPA # 8HWMA-FF(EPA)), we agree that it needs to be revised to include more information about the different surficial soil sampling techniques. Several Document Change Notices (DCNs) that have amended the procedure need to be rewritten as a new procedures. With regards to the HPGe SOPs, several conversations have taken place between the technical experts and project managers at the CDH about the SOPs for these various HPGe applications. A revised SOP GT.30 has been submitted on March 8, 1993. SOPs GT. 28 and SOP GT.29 have been conditionally approved. In addition we have agreed to develop a Compendium of In-situ Radiological Characterization Methods and Analysis. The laboratory application of the HPGe is still being developed. It will be submitted for approval before it is used for analysis. This is consistent with the other work plans that have been approved by the CDH. We have also revised Section 6— Field Sampling and Analysis Plan to avoid the use of HPGe detectors for sampling beneath the pavement. Our inability to reach agreement on this problem has not caused any scheduling or milestone delays.

CDH #2 In Section 3.2.7 of the final version of the No Further Action Justification Document for OU 16, DOE states that further investigation of IHSS 197 is warranted. DOE also states that because IHSS 197 is closely related both geographically and historically to IHSS 117.1, the investigation of IHSS 197 should be included with that of IHSS 117.1 as a part of the RFI/RI for OU 13. Therefore, please modify Section 6.3.1.1 as needed to investigate the accessible portions of IHSS 197.

RESPONSE CDH #2: Those portions of IHSS 197 that are accessible are addressed in Section 6.3.1.1.

Specific Comments:

CDH #3 Section 3.0: The Division disagrees with the disposition of our comment to the draft work plan regarding Section 3.0. Cleanup criteria will be based on both the results of the risk

assessment (environmental and human-health) and ARARs. Hopefully, the risk assessment and ARARs will be coordinated to a large extent since many ARAR standards are health-based. However, both sources will be considered when finalizing cleanup criteria.

In addition, contrary to the text of the second paragraph of this section, CDH and EPA have not proposed establishing ARARs on a sitewide basis. Instead we have urged DOE to establish the proper sitewide universe of potential ARARs. Since we could not agree on what this universe should include, the short term problem was resolved with the development of the Benchmark Tables. The understanding was that the Benchmark Tables would be incorporated into all work plans so that data with appropriate detection limits would be gathered in the investigations to support: 1) future compliance with ARARs, 2) future cleanup standards, and 3) the Baseline Risk Assessment. This is consistent with the text in the first paragraph that says "The Benchmarks . . . will be used to establish RFI/RI analytical detection limits. Cleanup criteria will be site-specific . . ." It is important to note that the benchmarks were intended to be used to set analytical detection limits as low as, or as close as possible to, the lowest benchmark for any given chemical. Commitment to this concept needs to be emphasized within the text. The second portion of the Division's comment to Section 3.0 was not addressed. We asked that our 6/12/92 comments to the Benchmark Tables (Gary Baughman to Martin Hestmark, cc'd to Rich Schassburger) be incorporated into the final work plan version. Though some of the comments have been addressed, many remain unresolved.

Until the above issues are resolved, we will be unable to approve this work plan.

RESPONSE CDH #3: We have revised the management approach to Chemical Benchmarks to clarify our position which is that EPA approved methods will be used in Stage I analysis to determine the presence or absence of contaminants at levels of resolution that are appropriate for screening level activities. It is not our intention to analyze our screening level stage I sampling for each and every contaminant at or near its detection limit. To do so would be prohibitively expensive, and not serve any particular DQO. Furthermore the Benchmark Tables were recently revised to incorporate each of the comments made in the March 25, 1992 letter from CDH and the June 8, 1992 comments from EPA. After review the agencies came back with additional comments and requirements in excess of those asked in the above referenced letters. The Benchmark Tables have been revised to accommodate most of those later comments. All of Section 3 including the Benchmark Tables are included in the Revised Final Work Plan packet. We ask that this condition of approval be lifted based on your acceptance of the revised tables.

CDH #4 Section 5.1.2.5: As stated in our original comment to this section, when ground water contamination has been confirmed at an IHSS, one downgradient well will not be sufficient. Plume delineation will be necessary. As stated in your response to comments, this can be handled on a case by case basis, but acknowledgment must occur in the text.

RESPONSE CDH #4: The text has been revised accordingly. Please see Section 5.1.2.5.6.

Section 6.0 - General Comments:

CDH #5 An SOP needs to be developed for collecting surface soil samples in paved areas which assures consistent useable data.

RESPONSE CDH #5: Although a DCN to SOP GT.08 for collecting surface soils below the pavement was prepared last October, we realize that the SOP needs revision to be consistent with the methods outlined in the revised Field Sampling and Analysis Plan. A revised SOP GT.08 will be submitted to the agencies for review and approval prior to the initiation of field work utilizing this procedure.

CDH #6 Relating to General Comment 1 above, without an SOP, the Division is unable to assess the viability of the technique proposed in this work plan where the HPGe detector is placed directly over a hole cut in pavement. In a brief conversation with EG&G experts on the HPGe detector, it was indicated to Division personnel that this technique will only yield qualitative data. This would not be acceptable to the Division, resulting in an expansion of the surface soil sampling program in paved areas.

RESPONSE CDH #6: This comment was considered and lead to the revision of Sections 5 (DQO's) and 6 (FSAP).

CDH #7 The Division is also unable to assess the viability of the "laboratory HPGe" without an operating procedure.

RESPONSE CDH #7: An SOP for the Laboratory Analysis using the HPGe will be submitted to the regulatory agencies prior to its use in evaluating samples from OU 13. See Response EPA Comment #12.

CDH #8 Clarification should be included in the text explaining how the appropriate number and location of surface soil samples was determined for each IHSS. This should be included for both radionuclide and non-radionuclide samples. The Division does not believe that a sufficient number of surface soil samples has been proposed for complete characterization. It is important to note that the risk assessment is only one reason to collect surface soil samples (see Section 5.1.2.5). The other reasons is to establish the extent of contamination. These reasons may have different data quantity and quality needs. Indication that both data needs were considered was not found in the work plan. Therefore, the Division proposes the following: 1) For IHSS 117.1, 117.2, 117.3, 128, 134, 148, 157.1, 158, and 171, the proposed program should be expanded so that at least one surface soil sample is taken for every four soil gas and/or HPGe survey points; 2) Surface soil samples taken in IHSS 134(S) should be analyzed for magnesium and samples taken in IHSS 148 should be analyzed for beryllium; and 3) The program as proposed in the work plan is sufficient for IHSSs 152 and 186. However, the location of the soil samples in IHSS 186 should be reviewed.

RESPONSE CDH #8: Sections 5 (DQOs) and 6 (FSAP) was revised to address the concerns that have been expressed. We agree that there are different data quality needs besides those needed for risk assessment. We also feel that it is likewise impossible to develop a statistically defensible surficial soils program without revisiting the DQO's for the screening level/Stage I investigation. We have proposed a two stage sampling program which will meet those DQO's and allow a statistically valid number of samples to be obtained for Stage II - Characterization. We have proposed a statistically defensible program in the revised field sampling program in response to item 1. Item 2—These analytes have been listed in Table 6.4 and appropriate references made in the text. Item 3—This suggestion has been considered in the revision of the entire surficial soils sampling component.

CDH #9 The Division remains concerned about the scope for the Stage 2 investigation for the following reasons:

1) Table 6.1 indicates that, in IHSSs where no contamination was detected by the screening surveys, at least one borehole will be drilled at the location of most likely contamination. However, Section 6.3.2 and Figures 6-1A through 6-1D indicate that only one borehole will be drilled in these sites. Either way, the Division feels that there are other factors that should be taken into consideration before a number of boreholes is finalized. These items include:

- IHSS size, and
- Whether or not the waste history involves releases originating below the ground surface.

The "point" most likely to be contaminated based on the history of the site (mentioned in Section 6.3.2) may be impossible to determine either because of a lack of historical data or because of a homogeneity of waste storage across the site.

RESPONSE CDH #9: We generally agree with your comments—that is why we have adopted an observational approach to this remedial investigation. We don't know at this time how many boreholes will be needed. We agree that in most cases one borehole may not be sufficient. That issue will be addressed in the Technical Memorandums developed as more data is obtained. Only two IHSS's have a history indicating below ground releases. Those are IHSSs 148 and 186.

CDH #10 All three of the above references indicate that a maximum of two boreholes will be drilled in IHSSs at the location where screening surveys have indicated maximum contamination. The Division questions what information this will yield:

- If the boreholes confirm contamination, one borehole cannot ascertain the three dimensional extent.
- If the boreholes do not confirm contamination, Figures 6-1A through 6-1D indicate that no further characterization is necessary, yet the contamination found with the screening surveys has not yet been characterized.

Therefore, the Division proposes the following strategy: 1) At IHSSs where no contamination was found during the screening surveys, a sufficient number of borings will be drilled and sampled in Stage 2 to confirm that there is no subsurface contamination. The number of borings will be proposed in the first Technical Memorandum (after Stage 1) and will be based on IHSS size, known waste storage history, and the possible presence of below-ground releases. 2) At IHSSs where contamination was found during the screening surveys, Stage 2 will consist of at least three borings transecting each anomaly (rad and non-rad) downgradient from the point of maximum indicated contamination. This will be done for a maximum of three transects (nine borings) per IHSS. 3) Stage 3 can then assess the need for any additional borings to complete characterization and effectively locate needed ground water monitoring wells.

RESPONSE CDH #10: This is reasonable and has been incorporated in to Section 5.1.2.5.6.

CDH #11 Portions of several of the OU 13 IHSSs lie beneath buildings. Since these portions of the IHSSs cannot be investigated and evaluated directly, the RFI/RI must indirectly investigate them as completely as possible. Because the only possible pathway from under-building contamination to a receptor is through the subsurface, the vadose and saturated zones must be evaluated during the RFI/RI in order to assess risk. Therefore, Stages 2 and 3 must implement sufficient boreholes and monitoring wells as close to the building edge as possible to characterize the contamination at the building edge and assess risk. To the extent possible, DOE should look to the future D&D schedule of the building in question and determine when the under-building contamination can be directly assessed. If this cannot be determined, or if D&D will be too far in the future, or if D&D will not involve building removal, DOE must assume that a part of the remedy for IHSSs with under-building contamination will be continued monitoring of the affected under-building area. We urge DOE to consider how strategic placement of the RFI/RI boreholes and wells could lessen the additional monitoring requirements of the final remedy.

RESPONSE CDH #11: Section 6.3 has been amended to present and discuss sampling options for PACs and PICs in the OU13 area. We will agree to discuss these issues further in the Technical Memorandums. Under Building Contamination should be addressed in D&D. As more details of the D&D plan are developed this issue should be revisited. If more information or a change in policy is agreed to, the work plan can be amended by the Technical Memorandum process.

Section 6.0 - Specific Comments:

CDH #12 Section 6.3.1.1: The Division is concerned about the rigidity to which the 20'-triangular grid was applied to this IHSS. For instance, along the northern edge of the surveyed area, only three sample locations are proposed next to the secured area fence. It appears that this occurred because the grid locations fell on or just on the other side of the fence. This leaves a fairly significant area along the fence that will not surveyed. The same is true along and adjacent to the multiple pipeline throughway that runs about 60' north of the southern border of the IHSS. Both of these areas could be surveyed by points slightly different from the grid locations.

RESPONSE CDH #12: We agree that the grids need to be flexible. The grids were laid out according to the dimensions of the particular IHSSs, beginning at an arbitrary point. They were located in response to earlier comments that the regulatory agencies wanted to know exactly where we planned to sample. The Field Sampling Plan has been revised to accommodate these comments. As the grid is laid out just prior to sampling, a map of the proposed locations will be forwarded to the agencies for their comment. Likewise any changes or deviations to the sampling regime for whatever reason will be documented accordingly.

CDH #13 As outlined in General Comment 2 above, DOE has recommended adding IHSS 197 (currently part of OU 16) to OU 13 for further investigation. As it is closely tied to IHSS 117.1 both historically and geographically, this section of the work plan should be modified to include the accessible portions of IHSS 197.

RESPONSE CDH #13: Accessible portions (that portion of the IHSS which is not in the Protected Area) of IHSS 197 have been added to the investigation of IHSS 117.1. Please see section 6.3.1.1.

CDH #14 Section 6.3.1.3: The Division sees no reason to increase the grid spacing for the soil gas survey from 20' to 40' for this IHSS given that: 1) the only documented release in this IHSS involved highly contaminated oils, and 2) the adjacent IHSS (152) has documented releases of petroleum products.

RESPONSE CDH #14: We disagree. Although the IAG requires a 100' offset grid, we chose a 40' grid to locate spills that were estimated in the hundreds of gallons. This should be more than adequate to locate any residual contamination from the large spills. A twenty foot grid would come very close to providing 100% coverage of the area investigated. In light of the size of the reported spills, we feel that type of coverage is not needed at this time. In addition, we have committed to follow any contamination that is detected until we know how far it extends. Please see Section 5.1.2.5.2.

CDH #15 One of the surface soil samples appears to be located on the berm of Tank 224. The Division does not understand the value of sampling the berm material and believes this sample should be relocated. The other four proposed surface soil sample locations appear on the four corners of the IHSS. Relating to Section 6 general comment 5 above, these locations do not seem appropriate for characterization purposes.

RESPONSE CDH #15: The method for selecting surficial soils sampling points has been changed. The location of surficial sampling points is described in Section 5.1.2.5.3. Also, please see comment EPA # 8.

CDH #16 Section 6.3.1.4: Again, the Division is concerned about the rigidity with which the 20' grid has been applied. If, as is indicated in Section 2.1.1.4, the burning pit is located beneath Sage Avenue, then it seems reasonable to sample both sides of the road as close to the pavement edge as possible. If the soil gas probe needs to be placed deeper to account for the additional fill material at the surface, then do it.

RESPONSE CDH #16: The soil gas locations can be modified to accommodate this request during the visual inspection. Any modifications to the sampling plans will be presented to the agencies for concurrence. The soil gas probe will be placed at a depth of 15 feet which is 10 feet deeper to account for the fill material that may have been placed in the area. Please see Section 6.3.1.4.

CDH #17 The Division requests that perchloroethene be added to the soil gas analyte list based on text in Section 2.1.1.4.

RESPONSE CDH #17: Perchloroethene has been added to the analyte list. Please see Section 6.3.1.4.

CDH #18 Please justify whether a 20' triangular grid can, with sufficient probability, locate a soil gas anomaly associated with the burn pit. The burn pit may have been substantially smaller than the 32.2' by 15.6' ellipse mentioned in Section 5.1.2.4.

RESPONSE CDH #18: Information gathered from other soil gas investigations has indicated that under conditions found at Rocky Flats, the radius of influence taking a soil gas sample is 10 feet which virtually assures 100% coverage when using a 20 foot grid. Please see section 5.1.2.5.2.

CDH #19 The Division requests that the survey area for IHSS 128 be expanded westward to Fourth Street. The reason for this is the uncertainty of the burn pit location based on Section 2.1.1.4 and Historical Release Report (HRR) text.

RESPONSE CDH #19: If there are anomalous soil gas readings, we are committed to tracking the plume as described in the text of the revised FSP. If nothing is found and the location of the burn pit cannot be inferred from data gathered in the original IHSS boundary, we will expand the survey area westward to Fourth Street. Figure 6-6 has been revised to show this possible expansion area. Please also see description in section 6.3.1.4.

CDH #20 Section 6.3.1.5: Given that metal contamination is the most likely problem in this IHSS, the adequacy of five surface soil samples, only one of which is located in the central portion of the site, is questioned. The Division recommends that the HPGe survey be deleted from this IHSS and replaced by an expanded surface soil sampling program.

RESPONSE CDH #20: HPGe portion of the survey has been deleted per your recommendation. Eleven surficial soils samples will be taken in this IHSS group. Magnesium and lithium are specifically listed as target analytes. Please see section 6.3.1.5.

CDH #21 Section 6.3.1.6: Please clarify how the exact location of the OPWL, where it exits the south side of Building 123, will be determined for strategic location of the shallow soil boring. If the invert elevation of the OPWL is 2.5 feet below the ground surface in the vicinity of the shallow surface boring, and the boring will be advanced only 3 feet, how will an overlap of only 0.5 feet be able to evaluate releases? The Division recommends drilling and sampling

this boring to bedrock as indicated in Section 6.3.2 and 6.4.4.

RESPONSE CDH #21: The OPWL will be located through the use of plant records and observation if possible. If these methods fail to locate the line, other methods such as hand trenching (because the line is not very deep, this may be the most cost/time effective method), or more complicated physical methods can be employed. Please see sections 6.3.1.6, 6.3.2, and 6.4.4.

CDH #22 Based on material presented in the HRR, the Division feels the investigation planned for this IHSS is over scoped. All of the survey points west of the eastern boundary of the west wing of Building 123 could be eliminated.

RESPONSE CDH #22: Based on this recommendation, all survey points west of the eastern boundary of the west wing have been eliminated (unless soil gas or other anomalies indicate that the survey area should be expanded). Please see Figure 6-8

CDH #23 Section 6.3.1.7: Given the type of contamination that may be associated with this IHSS, the Division does not see any justification to increase the grid spacing of the soil gas survey from 20' to 40'.

RESPONSE CDH #23: We disagree. Although the IAG requires a 100' offset grid, we chose a 40' grid to locate spills that were estimated in the hundreds of gallons. This should be more than adequate to locate any residual contamination from the large spills. A twenty foot grid would come very close to providing 100% coverage of the area investigated. In light of the size of the reported spills, we feel that type of coverage is not needed at this time. In addition, we have committed to follow any contamination that is detected until we know how far it extends. Please see Section 5.1.2.5.2.

CDH #24 Section 6.3.1.8: Associated with grid rigidity, please review the sample locations proposed north and south of Building 442. Please state in this section of the text that the potentially affected portion of the Central Avenue Ditch included in this IHSS will be investigated during the comprehensive surface water and sediment sampling plan currently being developed by EG&G for DOE.

RESPONSE CDH #24: All sample locations have been reviewed in light of this and similar comments which lead us to believe that the revised surficial soils sampling plan will allow sufficient flexibility in determining locations and bias the sampling effort towards locating contaminated areas. Please see section 5.1.2.5.3. The reference to the Surface Water and Sampling Plan has been added. Please see section 6.3.1.8.

CDH #25 Section 6.3.1.12: It is unclear from the text how deep the four proposed borings will be drilled. The text indicates that two borings will be drilled to 10', but does not mention the planned depth of the other two. The Division recommends that all four borings be drilled and sampled to bedrock as indicated in Sections 6.3.2 and 6.4.4.

RESPONSE CDH #25: The soil borings will be drilled and sampled to bedrock.

Please see section 6.3.1.12.

CDH #26 Section 6.4.1: The configuration of the HPGe equipment used during this investigation should assure 100% coverage. 100% coverage is consistent with the sampling program approved in other work plans.

RESPONSE CDH #26: HPGe surveys will be configured to assure 100% coverage. If such coverage is not possible, other radiological screening techniques such as FIDLER or NaI detectors will be used to accomplish 100% coverage. Please see section 5.1.2.5.1.

CDH #27 Section 6.4.3: This section needs to clarify that the surficial soil sampling methodology to be used in the OU 13 investigation is found in Section 5.2.3 (Jig and Scoop - RFP Method) of EMD OP Gt08 for unpaved areas and in Section 5.2.4 (Stainless Steel Scoop - Grab Sample) for paved areas. In addition, clarification should be added that the procedure to be used for collecting the surface soil samples in unpaved areas will include use of a one-square meter template that locates five subsamples taken at each sampling location and that a 2500 cm³ composite will result rather than the 5000 cm³ written into OP Gt08. Details of the one-square meter template can be found in Technical Memorandum No. 5 to the Phase III RFI/RI Work Plan for OU 1.

RESPONSE CDH #27: This section has be rewritten to comply with the comment. Please see Sections 6.4.3.